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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,976	06/08/2001	David M. Pepper	B-3918 617820-9	2143

7590 12/11/2003  
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EXAMINER

PETKOVSEK, DANIEL J

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/877,976

Applicant(s)

PEPPER, DAVID M.

Examiner

Daniel J Petkovsek

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on amendment received November 10, 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31-43 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 23 and 44 is/are rejected.
- 7) ☒ Claim(s) 4,7-22 and 24-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

This office action is in response to the amendment received on November 10, 2003. In accordance with the amendment, claims 4 and 43 have been amended, and new claim 44 has been added. The arguments presented therein are not persuasive.

#### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Keene et al. U.S.P. No. 4,813,766.

Keene et al. U.S.P. No. 4,813,766 teaches (Figs. 1 and 8A-8C, column 3 lines 11-46, column 12 line 50 through column 13 line 20, *column 13 lines 30-37*) an optical system (and inherent method of same) comprising: an optical pulse source 30 generating an input, a controllable delay structure 32 providing selectable delay for each optical output pulse stream (see Figs. 8A-8C), with a controllable, as in the selection, delay relative to the input. Regarding claims 2 and 3, the output streams are beam-steered across subapertures 38.

#### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 6, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keene et al. U.S.P. No. 4,813,766.

Keene et al. U.S.P. No. 4,813,766 teaches (Figs. 1 and 8A-8C, column 3 lines 11-46, column 12 line 50 through column 13 line 20, *column 13 lines 30-37*) an optical system (and inherent method of same) comprising: an optical pulse source 30 generating an input, a controllable delay structure 32 providing selectable delay for each optical output pulse stream (see Figs. 8A-8C), with a controllable delay relative to the input. Keene et al. '766 does not explicitly teach that the source is modulated to produce modulated input pulse streams.

However, it would have been an obvious modification to a person having ordinary skill in the art at the time the invention was made to modulate input sources for the purpose of creating a source that fits the specific needs of the optical system, since the modulation of optical input signals are well known in the art. Regarding claim 6, the input source is a laser. Regarding claim 44, although not explicitly taught, but since the optical system selects/controls output delay to a plurality of output delays, it would have been an obvious modification to the prior art to include continuous delays that are controllable. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a continuous range of delays to be selected, in order to increase the applicable range of delay in the system.

***Allowable Subject Matter***

5. Claims 31-43 are allowed. The pertinent prior art does not teach or reasonably suggest an optical beam steering device comprising: at least one layer of electro-optically active material, the layer having a proximal end and distal end, a means for applying a voltage across the layer, a plurality of tapped output couplers, each tapped coupler disposed in an increasing distance from

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the proximal end, and an array of apertures, each aperture receiving an optical beam output from a corresponding tapped output coupler of the plurality of output tapped couplers. Method restrictions (claims 40-43) of same device of independent claim 31 are also allowed.

6. Claims 4, and 7-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The relevant prior art does not teach a wavefront compensator integrated with an array of optical apertures. The relevant prior art does not teach or reasonably suggest, in combination with independent claim 1, a plurality of tapped output couplers arranged in an increasing distance from the proximal end. The dependent claims 8-14 and 16-22 upon claims 7 and 15 are also objected to as being allowable, if including the base claim and any intervening claim.

7. Claims 24-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The relevant prior art does not teach or reasonably suggest coupling the pulse stream into a layer of electro-optic material having multiple output ports, and coupling a portion of the pulse stream out of the layer at each output port, the controllable time delay function put in use by voltage control.

#### ***Response to Arguments***

8. Applicant's arguments filed November 10, 2003, have been fully considered but they are not persuasive. Applicant traverses the 35 U.S.C. 102 (b) rejection under Keene et al. U.S.P. No. 4,813,766 to claims 1-4 and 23 by stating that Keene et al. '766 has not shown that the delays are controllable. Applicant states that Keene et al '766 merely selects a delay but does not control it.

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This argument is not persuasive, since selecting which a particular delay which used as the output is inherently a form of controlling the system. For selection of a required element to occur, the apparatus of Keene is in effect controlled by this particular selection. Furthermore, Keene teaches that it would be reasonable to create a plurality of sub-beams, each having selectable delays for the same purpose.

The rejection to claim 4 has been withdrawn, and claim 4 is indicated as having allowable material if included in the independent claim. New claim 44 has been rejected as being an obvious modification of Keene et al. '766.

It is acknowledged that Keene et al. '766 and the current application have some patentable differences, as indicated by the allowable subject material. However, the present claim language does not overcome the art of Keene et al. '766.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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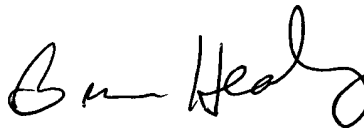
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (703) 305-6919. The examiner can normally be reached on M-F 8:30-5:00. After January 12, 2004, the new phone number of the Examiner will be (571) 272-2355.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9321.



Daniel Petkovsek  
December 5, 2003



**Brian Healy**  
**Primary Examiner**